

REMARKS

The Office Action of April 29, 2009, has been carefully studied. Claims 2, 9 and 10 currently appear in this application. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration and formal allowance of the claims.

Claim Amendments

Claim 2 has been amended by incorporating the subject matter of claim 6 and by amending the phrase "allowing a trehalose phosphorylase to act on" to -reacting a trehalose phosphorylase with- in accordance with the Examiner's helpful suggestion. Claims 5 and 6 have been cancelled.

Claim Suggestion

The Examiner suggest that the fourth line of claim 2 be changed to read "reacting a trehalose phosphorylase with..." Applicant appreciates the Examiner's helpful suggestion. Claim 2 has been so amended.

Rejections under 35 U.S.C. 112

Claims 2, 5, 6, 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention. The Examiner alleges that the microorganism is essential to the claimed invention, it must be obtainable by a repeatable method.

This rejection is respectfully traversed.

Submitted herewith is a copy of the relevant pages of ATCC catalogue *ATCC Bacteria and Bacteriophages, 19th Edition* (1996), in which *Thermoanaerobacter brockii* (ATCC 35047) is listed at pages 409-410. Please note that *Thermoanaerobium brockii* is a former name of *Thermoanaerobacter brockii* (Please see the penultimate line of the right column on page 409). It is clear from this catalog that the microorganism *Thermoanaerobacter brockii* (ATCC 35047) is readily available to the public.

The subject microorganism, *Thermoanaerobacter brockii* (ATCC 35047) was deposited under the terms of the Budapest Treaty and is currently available to the public, during the pendency of the application access to the microorganism will be afforded to the Commissioner upon request, restriction upon availability to the public will be irrevocably removed upon granting of a patent, and the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer. The deposit will be replaced should it even become enviable. This statement, made over the signature of a registered patent attorney acting as attorney for applicant, is sufficient under 37 CFR 1.801 *et seq.* to satisfy the requirements of 35 U.S.C. 112.

Claims 1, 2, 5, 6, 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, because the specification is said to be enabling only for a method for transferring a glucosyl residue to glucuronic acid and/or a salt thereof by reacting trehalose phosphorylase obtained from *Thermoanaerobacter brockii* (ATCC 35047) with glucose 1-phosphate or trehalose to obtain the glucosylated glucuronic acid and/or salt thereof. This rejection is respectfully traversed.

Claim 2, upon which claims 9 and 10 depend, claims 5 and 6 having been cancelled without prejudice, has been amended to recite that the enzyme is one which

is "a natural enzyme obtained from *Thermoanaerobacter brockii* or a recombinant enzyme thereof."

It is respectfully submitted that it is not necessary to limit the claimed enzyme to one produced only by the specific strain of *Thermoanaerobacter brockii* disclosed in the specification. The specification at page 2, line 8 to page 3, line 9, notes that the present inventors tried a number of different saccharide phosphorylase enzymes for producing glucosyl-transferred polyols, and that these enzymes were not effective for the method claimed herein.

Instead, the present inventors discovered that a trehalose phosphorylase was able to transfer a glucosyl residue to glucuronic acid. As described in the specification at page 5, lines 15-25,

The word "trehalose phosphorylase" as referred to as in the present invention means an enzyme which catalyzes a reaction of phosphorylating a disaccharide, trehalose in the presence of inorganic phosphoric acid and/or its salt to form D-glucose and β -D-glucose-1-phosphoric acid or its salt. The trehalose phosphorylase in the present invention is defined as above, and is not restricted by its origin and preparation method as far as it transfers a glucosyl residue to one or more polyalcohol's, glucuronic acid, and/or one or more C-6DGs.


It is clear from the above, that the method claimed herein can be accomplished with any trehalose phosphorylase, not only the trehalose phosphorylase obtained from (ATCC 35047). What was surprising was that trehalose phosphorylase was capable of transferring a glucosyl residue to a polyalcohol, glucuronic acid or a C5-DG, while other similar enzymes were not. Accordingly, it is respectfully submitted that the claims should not be limit to a particular strain of *Thermoanaerobacter brockii* used to prepare the trehalose phosphorylase.

The Federal Circuit, in *Ajinomoto Co., Inc. v. Archer-Daniels-Midland*, 228 F.3d 1338, 56 USPQ2d 1332 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 1019 (2001), held that even though only one specific strain of the microorganism used for producing increases quantities of amino acids, this deposit was sufficient to meet the requirements of 35 U.S.C. 112 . Therefore, it is respectfully submitted that the deposit of one strain of *Thermoanaerobacter brockii*, the microorganism that produces trehalose phosphorylase used in the herein claimed method, should be sufficient to satisfy the enablement requirement.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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